NASA Aircraft Icing Project Research Overview

presented by Tom Bond

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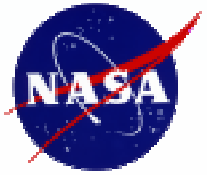
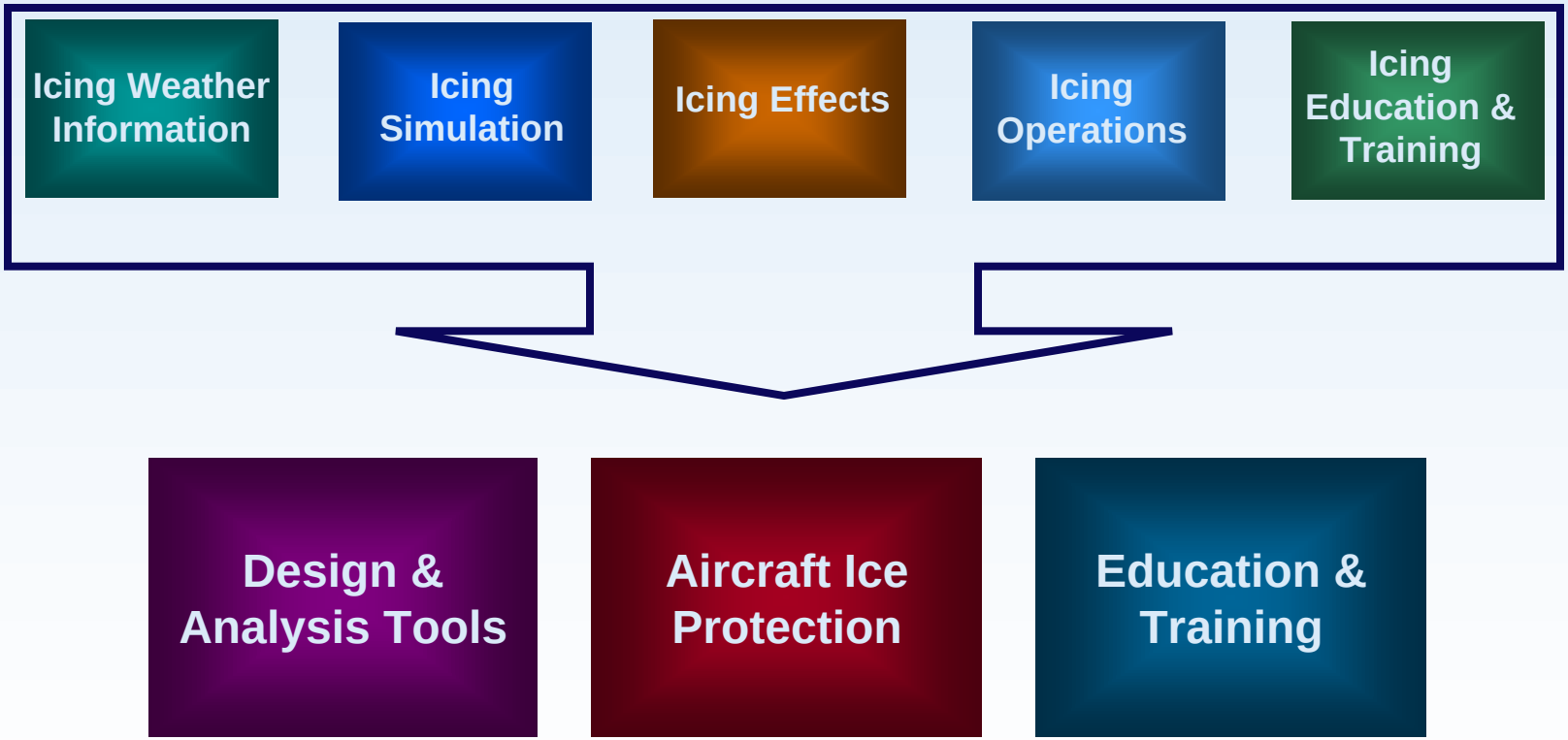


Aircraft Icing Research - Introduction

- Over the last 4 years, NASA has significantly increased the funding for in-flight icing research.
- We have developed our research strategy and plans based upon the outcome of the ASIST findings, industry feedback through events like the June, 1998 Icing Forum, dialogue with FAA (Technical Center, Aviation Weather Research, and National Resource Specialist), and internal NASA reviews.
- These activities were intended to develop, then tune, a robust, comprehensive strategy to examine the issues related to aircraft icing research.

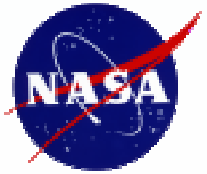
Aircraft Icing Research - Project Structure

NASA developed 5 technical elements that were then recast into three “product lines”



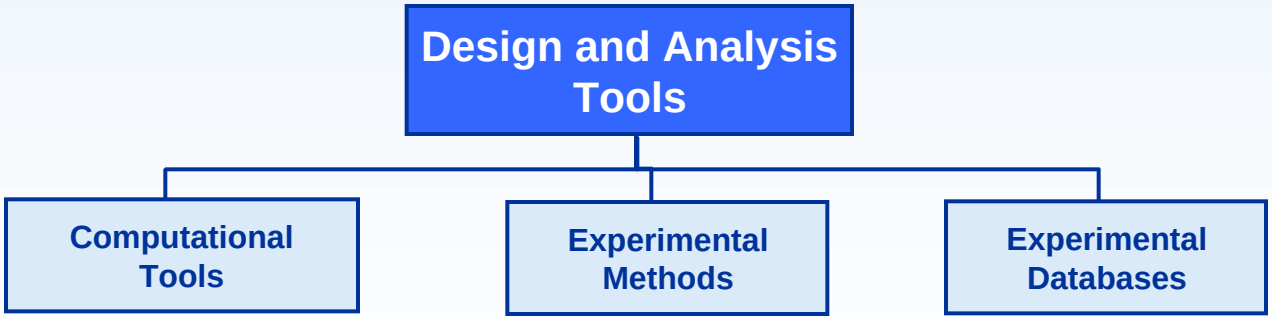
Aircraft Icing Research - Project Structure

- Received comments on Project over last few years:
  - Difficulty in understanding what we did “research on” versus what we “delivered”
  - How technical elements connect to what we develop and release
  - Provide better focus on what we develop for end users
- Recast project structure by identifying research via product lines
- Either interim or final deliverables now describe the technical flow structure



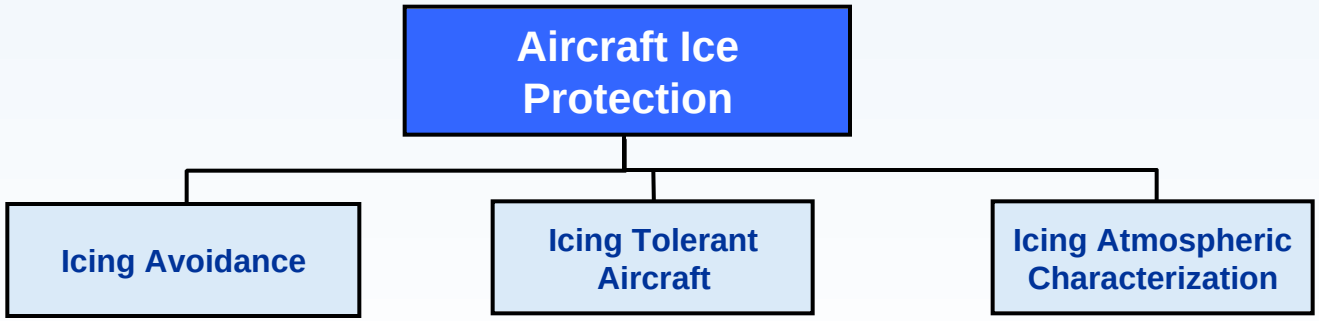
Aircraft Icing Research - Project Structure

- Design and Analysis Tools
  - Reflects historical base research on simulation tools, both analytical and experimental, the databases we generate, and the methods we develop to examine, test, and define the physical elements of icing.



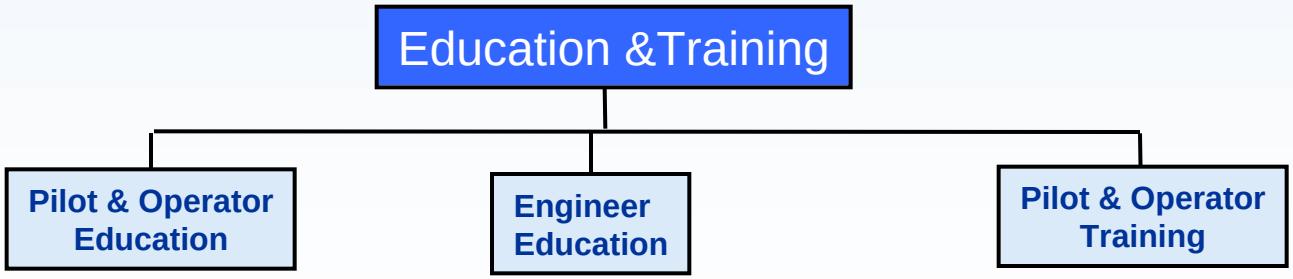
Aircraft Icing Research - Project Structure

- Aircraft Ice Protection
  - Defines traditional work we have done in characterizing natural icing conditions and sponsoring protection/detection development, plus new areas in avoiding icing conditions and integrated on-aircraft icing recognition and management.



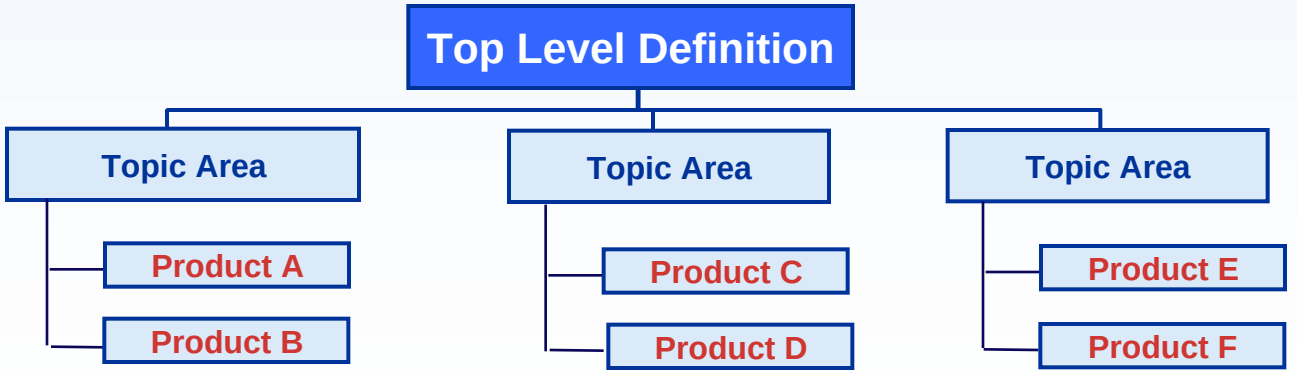
Aircraft Icing Research - Project Structure

- Education and Training
  - A new area based upon:
    - Feedback from ALPA, the FAA, and other trade organizations that pilots and operators need better information on the meteorology and impact of ice
    - Accident investigation analysis reflecting lack of information on icing for pilots
    - Internal NASA desire to improve communication to engineer/users of our products



Aircraft Icing Research - Project Structure

- Each product line represents a top level definition of the technical area and the attendant cascading of products into related topic areas.
- We will review the top level goals and objectives down to the topic area and then sight specific products we have recently worked on as examples.
  - Present representative cases and overview results
  - Detailed information will be available through technical papers and media outside the auditorium, or upon request.



Aircraft Icing Research - Summary

- This project reflects a broad spectrum of needs that the U.S. aerospace industry has identified as critical to safe operations, improved design and certification capability, and increased capacity.

- The plan you will see details these needs through a comprehensive view of icing research problems from characterization and simulation through intervention.